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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,325	06/28/2004	Hiroshi Aruga	1032404-000079	8943

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EXAMINER

VAN ROY, TOD THOMAS

ART UNIT	PAPER NUMBER
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2828

NOTIFICATION DATE	DELIVERY MODE
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08/16/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/500,325	Applicant(s) ARUGA ET AL.	
	Examiner TOD T. VAN ROY	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/23/2011 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 24-34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24, 25, and 28-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Kwon et al. (US 2003/0002551).

With respect to claim 24, Kwon discloses an optical semiconductor device (fig.6 LD) comprising: a first transistor (fig.6 Q1) connected to a first resistor (fig.6 can be

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either Rc1 or resistor to left of Q4); a second transistor (fig.6 Q2) connected to a second resistor (fig.6 can be either Rc2 or resistor to right of Q3); an optical semiconductor element (fig.6 LD) having an anode and a cathode; a first conductor line having a first end and a second end (fig.6 from emitter of Q1 to LD), the first end connected between the first transistor and the first resistor, and the second end connected to the anode of the optical semiconductor element; and a second conductor line (fig.6 from emitter of Q2 to LD) having a third end and a fourth end, the third end connected between the second transistor and the second resistor, and the fourth end connected to the cathode of the optical semiconductor element, wherein one of the first and second conductor lines is configured to receive a positive-phase signal as an input signal, and the other one of the first and second conductor lines is configured to receive an antiphase signal as an input signal (fig.6 via Vin1 and Vin2, inverted/non-inverted [0027]).

With respect to claim 25, Kwon further discloses one side of the first resistor is connected at a ground potential, and one side of the second resistor is connected at the ground potential (fig.6 when resistors are taken to be Rc1/2).

With respect to claim 28 (when resistors in claim 24 are taken to be the ones to the left/right of Q3/4), Kwon discloses the first conductor line includes a first matching resistor (fig.6 Rc1) between the first end and the second end of the first conductor line; and the second conductor line includes a second matching resistor (fig.6 Rc2) between the third end and the fourth end of the second conductor line.

With respect to claim 29, Kwon discloses a first inductance element connected to the anode of the optical semiconductor element; and a second inductance element

connected to the cathode of the optical semiconductor element (fig.6 Lss1/2, formed via pathway formed inductances [0030]).

With respect to claim 30, Kwon discloses one end of the first inductance element is connected at a ground potential (fig.6 circuit pathway creates the inductance response, pathway is connected to ground).

With respect to claim 31 (when resistors in claim 24 are taken to be the ones to the left/right of Q3/4), Kwon discloses a third resistor connected in parallel to the first inductance element; and a fourth resistor connected in parallel to the second inductance element (fig.6 Rc1/2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon in view of Hokanson et al. (US 4873566).

With respect to claim 26, Kwon discloses the device outlined above, but does not teach the first conductor line and the second conductor line include one of micro-strip lines and grounded coplanar lines. Hokanson teaches connections to optical elements for driving them can be formed via micro-strip lines (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to form the conductor lines of Kwon via micro-strips as taught by Hokanson in order to better impedance match the optical device (Hokanson, abstract).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon in view of Nguyen (US 5646560).

With respect to claim 26, Kwon teaches the device outlined above, including a generic case using an input buffer (fig.2), but does not teach an input buffer configured to generate an adjusted positive-phase signal and an adjusted antiphase signal from a positive-phase signal and an antiphase signal, respectively, wherein the input buffer is configured to input one of the adjusted positive-phase signal and the adjusted antiphase signal into the first transistor, and to input the other one of the adjusted positive-phase signal and the adjusted antiphase signal the second transistor. Nguyen teaches a laser driving circuit using an input buffer for positive and antiphase signals input to transistors (fig.1). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the input buffer of Nguyen into the device of Kwon in order to amplify the input data signals prior to their distribution to the laser diode (Nguyen, col.1 lines 41-44).

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon in view of Ito et al. (US 4975664).

With respect to claims 32 and 33, Kwon teaches the device outlined in the rejection to claim 29, but does not teach the use of a specific low pass filter of the comb-like variety. Ito teaches the use of a comb-type filter. It would have been obvious to one of ordinary skill in the art at the time of the invention to add the additional comb-type filter of Ito to the circuit of Kwon in order to add the ability to tune the amount of filtering done via the circuit to eliminate unwanted higher frequencies (Ito abs.).

Claim 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon in view of Kobayashi et al. (US 5982793).

With respect to claim 34, Kwon teaches the laser diode driving device outlined in the rejection to claim 24, but does not teach the use of a packaging structure. Kobayashi teaches the use of a packaging structure having a lens and an optical fiber holding means (fig.2). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the device of Kwon with the package of Kobayashi in order to protect the device and provide a method to allow for information transmission.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOD T. VAN ROY whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Stultz can be reached on (571)272-2339. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tod T Van Roy/

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